

WHAT IS CLAIMED IS:

1. (Withdrawn) A process for solubilizing an organic material in an aqueous solution, the process comprising the steps of:

(a) treating the organic material with a protease at a temperature effective to maintain the protease active;

(b) modifying the temperature to a level effective to deactivate the protease;

(c) treating the organic material with an alpha-amylase, the alpha-amylase being effective at the modified temperature; and

(d) modifying the temperature to a level effective to deactivate the alpha-amylase, thereby solubilizing the organic material.

2. (Withdrawn) The process of claim 1, wherein the organic material is a grain.

3. (Withdrawn) The process of claim 2 wherein the grain is selected from the group consisting essentially of amaranth, corn, oats, wheat, barley, rye, kamut, quinoa, rice, spelt, millet, triticale, sorghum, and combinations thereof.

4. (Withdrawn) The process of claim 1, wherein the organic material is processed prior to protease treatment by physically reducing the size of the material.

5. (Withdrawn) The process of claim 4, wherein the size reduction is obtained by crushing, grinding, hammer milling, ball milling, crimping, blending, pressing, flaking, cracking, mixing or combinations thereof.

6. (Withdrawn) The process of claim 1, wherein the organic material is defatted prior to protease treatment.

7. (Withdrawn) The process of claim 6, wherein defatting is performed by solvent extraction, pressing, expelling, extrusion, hot water extraction, carbon dioxide extraction, or combinations thereof.

8. (Withdrawn) The process of claim 1, wherein the protease is neutrase.

9. (Withdrawn) The process of claim 8, wherein neutrase is mixed with the organic material at about 40-50°C for about 30-90 minutes.

10. (Withdrawn) The process of claim 9, wherein neutrase is mixed with the organic material at about 45°C for about 30 minutes.

11. (Withdrawn) The process of claim 1, wherein the alpha-amylase is termamyl.

12. (Withdrawn) The process of claim 11, wherein termamyl is mixed with the protease-treated organic material at 90-100°C for about 30-90 minutes.

13. (Withdrawn) The process of claim 12, wherein termamyl is mixed with the protease-treated organic material at about 95°C for about 30-60 minutes.

14. (Withdrawn) The process of claim 1, wherein the organic material is a blend of oilseed and grain material.

15. (Withdrawn) The process of claim 1, wherein the solubilized organic material contains highly digestible protein and soluble starch fraction.

16. (Withdrawn) A process for solubilizing an organic material in an aqueous solution, the process comprising the steps of:

(a) treating the organic material with a glycosidase at a pH and a temperature effective to maintain the glycosidase active;

(b) modifying the pH to a level effective to deactivate the glycosidase;

(c) treating the organic material with a protease, the protease being effective at the modified pH; and

(d) modifying the temperature to a level effective to deactivate the protease, thereby solubilizing the organic material.

17. (Withdrawn) The process of claim 16, wherein the organic material is a seed or oilseed material.

18. (Withdrawn) The process of claim 17, wherein the oilseed is selected from the group consisting essentially of flaxseed, soybean, linseed, chia seed, mustard seed, psyllium seed, quince seed, fenugreek seed, plantain seeds, and combinations thereof.

19. (Withdrawn) The process of claim 16, wherein the organic material is processed prior to glycosidase treatment by physically reducing the size of the material.

20. (Withdrawn) The process of claim 19, wherein the size reduction is obtained by crushing, grinding, hammer milling, ball milling, crimping, blending, pressing, flaking, cracking, mixing or combinations thereof.

21. (Withdrawn) The process of claim 16, wherein the organic material is defatted prior to glycosidase treatment.

22. (Withdrawn) The process of claim 21, wherein defatting is performed by solvent extraction, pressing, expelling, extrusion, hot water extraction, carbon dioxide extraction, or combinations thereof.

23. (Withdrawn) The process of claim 16, wherein the glycosidase is viscozyme.

24. (Withdrawn) The process of claim 23, wherein viscozyme is mixed with the organic material at a pH range of from about 3.5 to about 5.5 at about 40-50°C for about 0.5 to 6 hours.

25. (Withdrawn) The process of claim 24, wherein viscozyme is mixed with the organic material at a pH of about 4.5 at about 45°C for about 3 hours.

26. (Withdrawn) The process of claim 16, wherein the protease is neutrase.

27. (Withdrawn) The process of claim 26, wherein neutrase is mixed with the glycosidase-treated organic material at a pH range of from about 5.6 to about 7.5 at 40-50°C for about 30-90 minutes.

28. (Withdrawn) The process of claim 27, wherein neutrase is mixed with the glycosidase-treated organic material at a pH of about 6.0 at about 45°C for about 60 minutes.

29. (Withdrawn) The process of claim 16, wherein the solubilized organic material contains highly digestible protein and soluble saccharide fraction.

30. (Withdrawn) The process of claim 16, wherein the pH is modified using a food grade acid.

31. (Withdrawn) The process of claim 30, wherein the food grade acid is selected from the group consisting essentially of citric acid, phosphoric acid, hydrochloric acid, acetic acid, lactic acid, octanoic acid, propionic acid, and a mixture thereof.

32. (Currently Amended) A process for solubilizing an organic material in an aqueous solution, the process comprising the steps of:

(a) treating the organic material with an amount of glycosidase at a pH and a temperature effective to maintain the glycosidase active, wherein the organic material comprises a quantity of starch and mucilage, the amount of glycosidase being effective to digest polysaccharides;

(b) modifying the pH to a level effective to deactivate the glycosidase;

(c) treating the organic material with an amount of protease, the amount of protease being effective to break down proteins at the modified pH;

(d) modifying the temperature to a level effective to deactivate the protease;

(e) treating the organic material with an amount of alpha-amylase, the amount of alpha-amylase being effective to break down starch molecules at the modified temperature and pH; and

(f) further modifying the temperature to a level effective to deactivate the alpha-amylase, thereby solubilizing the organic material.

33. (Original) The process of claim 32, wherein the organic material is a blend of grains, seeds, oilseeds, or crop materials.

34. (Original) The process of claim 32, where the organic material is processed prior to glycosidase treatment by physically reducing the size of the material.

35. (Original) The process of claim 34, wherein the size reduction is obtained by crushing, grinding, hammer milling, ball milling, crimping, blending, pressing, flaking, cracking, mixing or combinations thereof.

36. (Original) The process of claim 32, wherein the organic material is defatted prior to glycosidase treatment.

37. (Original) The process of claim 36, wherein defatting is performed by solvent extraction, pressing, expelling, extrusion, hot water extraction, carbon dioxide extraction, or combinations thereof.

38. (Original) The process of claim 32, wherein the glycosidase is viscozyme.

39. (Original) The process of claim 38, wherein viscozyme is mixed with the organic material at a pH range of from about 3.5 to about 5.5 at about 40-50°C for about 0.5 to 6 hours.

40. (Original) The process of claim 39, wherein viscozyme is mixed with the organic material at a pH of about 4.5 at about 45°C for about 3 hours.

41. (Original) The process of claim 32, wherein the protease is neutrase.

42. (Original) The process of claim 41, wherein neutrase is mixed with the glycosidase-treated organic material at a pH range of from about 5.6 to about 7.5 at 40-50°C for about 30-90 minutes.

43. (Original) The process of claim 42, wherein neutrase is mixed with the glycosidase-treated organic material at a pH of about 6.0 at about 45°C for about 60 minutes.

44. (Original) The process of claim 32, wherein the amylase is a termamyl.

45. (Original) The process of claim 44, wherein termamyl is mixed with the protease-treated organic material at about 90-100°C for about 30-90 minutes.

46. (Original) The process of claim 45, wherein termamyl is mixed with the protease-treated organic material at about 95°C for about 30-60 minutes.

47. (Original) The process of claim 32, wherein the pH is modified using a food grade acid.

48. (Original) The process of claim 47, wherein the food grade acid is selected from the group consisting essentially of citric acid, phosphoric acid, hydrochloric acid, acetic acid, lactic acid, octanoic acid, propionic acid, and a mixture thereof.

49. (Original) The process of claim 32, wherein the solubilized organic material contains highly digestible protein, soluble saccharide, and soluble starch fraction.